

DOCUMENT RESUME

ED 280 535

JC 870 173

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TITLE The Maricopa Story: Expanding Communication to Serve Students and Staff.
INSTITUTION Maricopa County Community Coll. District, Phoenix, Ariz.
PUB DATE Oct 86
NOTE 32p.; Paper distributed at the National Conference of the League for Innovation in the Community College (Miami, FL, October 5-8, 1986).
PUB TYPE Reports - Descriptive (141) -- Speeches/Conference Papers (150)
EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *College Planning; College Programs; Community Colleges; Computer Assisted Instruction; *Educational Technology; Library Automation; Management Information Systems; Needs Assessment; *Organizational Communication; Program Descriptions; Program Implementation; *Technological Advancement; Telecommunications; Two Year Colleges
IDENTIFIERS *Maricopa County Community College District A2

ABSTRACT

Executive summaries are provided of a variety of projects undertaken by the Maricopa Community Colleges related to the use of technology, and to the staff and students in the district. Reports are presented for the following activities and plans: (1) Maricopa Community Colleges/Digital Equipment Corporation/Information Associates Partnership, a project to enhance the district's management information system; (2) Telecommunications Improvement Project, Phase I: Needs Assessment, a project designed to review the district's existing telecommunications system and to make recommendations for improvement; (3) Instructional Computing Master Plan, which offers recommendations for enabling the instructor to do instructional computing, provide programmer support, and exert leadership; (4) Library/Media Automation Project, for automating cataloging, public access, circulation, acquisitions, and media booking functions; (5) Center for Instructional Technology Strategic Master Plan, which outlines the center's plans for increasing college access to its resources and support services; and (6) Information Technologies Services Strategic Master Plan, which includes general directions for improving the use of various educational and information technologies. Finally, a list of development projects undertaken by the college between 1983 and 1986 is presented.
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MARICOPA
COMMUNITY
COLLEGES

"The Maricopa Story: Expanding Communication to Serve Students and Staff"

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The League for Innovation

1986 NATIONAL CONFERENCE

OCTOBER 5-8, 1986

We look at technology as pervasive at Maricopa, but, it isn't insidious; it is all encompassing. I think we have an intelligent notion about technology here. We see its metaphorical value as well as its application value. I think we've under-managed technology well here. That is, we've allowed it to find its way in the organization by providing and managing incentives about using technology, by letting people experiment and find their own way and their own uses of technology. We haven't been didactic about technology and yet we're probably the most technological-oriented place when it comes to instruction .

Paul A. Elsner
Chancellor

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Preface

To tell "The Maricopa Story" in two hours or to write about what we are doing would be lengthy, voluminous, and ambitious. The Maricopa Community College District is a leader and innovator in many different ways. This booklet is a collection of executive summaries of a few of our projects related to technology, our staff, and our students. Contributors are Alan Jacobs, faculty at Scottsdale Community College; Ron Bleed, Director of Information Technologies Services; Judith Leslie, Director of Computing Services; Jan Baltzer, Director of Telecommunication and Information Technologies Services Support; Laurita Moore, Project Manager, Library/ Media Automation; Naomi O. Story, Instructional Designer; and Ginny Stahl, Instructional Support Services Coordinator.

Paul A. Elsner, Chancellor of the Maricopa Community Colleges, guides and stimulates our thinking and movement toward the future. As a visionary, he provides us the challenge and foresight to serve our students' best interests. Throughout this booklet, you will read passages from a conversation with Dr. Elsner on our organization, our people, and our technologies.

I think at Maricopa we're flexible, pretty limber and agile toward solutions to problems. We take a good number of risks at a lot of different levels. People are thoughtful, generally they have a lot of information to offer about how things should be done.

Maricopa Community Colleges/Digital Equipment Corp./Information Associates Partnership Status Report

Merger of MCCCC Administrative Modules into Series-Z

*** Description:**

Maricopa Community College District does not use the current version of Information Associates' Series-Z. The goal of this project will be to evaluate MCCCC's application systems and to merge appropriate functionality/enhancements from MCCCC into the standard IA Series-Z.

*** Current Status:**

The Financial Records System has been evaluated and an implementation plan for installing the current version of FRS is in place.

*** Future Plans:**

In October 1986, the evaluation process for the Student Information System will commence. At the completion of the evaluation, a detailed plan will be built for the merger of Series-Z/SIS.

In November 1986, the evaluation process for the Human Resource System will commence. At the completion of the evaluation, a detailed plan will be built for the merger of Series-Z/HRS.

Integration of ALL-IN-1

*** Description:**

What is ALL-IN-1?

ALL-IN-1 is a software application that connects together several standard office functions such as word processing, electronic messaging, and desk management. All of these functions can be conveniently accessed from a central menu.

Current Status:

Currently, there are in excess of 400 employees using this software. Accounting summary information is accessible via the ALL-IN-1 system.

A detailed evaluation of the ALL-IN-1 software product has been underway for several months. Conclusions from this evaluation are that ALL-IN-1 is a viable tool for providing decision-making information.

*** Future Plans:**

It is a goal of MCCCC that over the next two years the use of ALL-IN-1 will be extended to all full-time professional employees, including administrators and faculty throughout the District.

In addition to its use as a workstation, Maricopa would like to extend the capabilities of ALL-IN-1 such that it can be used as a tool in the support of decision-making.

The next steps are to define the additional type of information that will be displayed using this tool. Areas to be considered are: enrollment, course, personnel, and planning information.

Budgeting Module

The goal of this module is to provide a tool to administrators that will assist them in the preparation and monitoring of the fiscal budget. At their workstations, they will be able to manipulate the data with the use of spreadsheet, word processing, or graphics software.

*** Current Status:**

The system has been built and was used by a small staff in preparation of the budget for the current fiscal year.

*** Future Plans:**

Continued enhancement and additional utilization will be made of this module.

Purchasing Module

Description:

To a large degree, the purchasing functions at Maricopa have been semi-automated or have been done manually. Recently, Information Associates has developed a purchasing module, which is integrated with the Financial Records System.

*** Current Status:**

A project plan is in place for the implementation of this module with an expected completion date of October 1986.

*** Future Plans:**

The next step is to evaluate the need for an inventory control module that would eventually integrate with the purchasing component. No plans are in place at this time.

Degree Audit System

*** Description:**

There is a continuing need to provide advisement information to students in a community college environment. To address this need, Maricopa has decided to develop a Degree Audit System. The primary object of the system will be to assist

students in the selection of courses based on degree requirements and courses already taken. In addition to being used as an advisement tool, the system will be capable of performing: graduation verification, program construction, curriculum management, statistical reporting, class load forecasting, articulation planning, and monitoring of the financial aid process.

The data contained within this system will be very useful in institutional planning and management.

*** Current Status:**

Following is a list of activities that have taken place since the inception of this project:

- Publishing of "Guidelines for the Development of a Computerized Student Information System."
- A definition of user's needs and expectations.
- System definition.
- Functional design.
- Technical design.

At this time, the implementation team is in the process of addressing all policy issues, coding and documenting the software, building training aids, and defining college wide implementation plans.

*** Future Plans:**

Completion of coding, documentation, and training materials and phased implementation of the software at a pilot college, followed by implementation at all seven (7) colleges will occur in the future.

Voice Registration

*** Description:**

In an effort to continue the process of providing quality service to its student population, Maricopa has decided to install a system that will enable the student to register for classes through the use of a telephone registration system.

Information Associates has developed such a system and has agreed to work with Maricopa in

the installation and enhancement of the system at MCCCCD.

* Current Status:

A Computer Assisted Registration Line (C.A.R.L.) which utilizes touch-tone phones has been installed and used successfully at Rio Salado Community College. Students have been able to add and/or drop courses, and request a summary of any actions they have taken. A second college, Maricopa Tech, has started using the system.

* Future Plans:

We plan to install the system at the other colleges within the Maricopa District, define and develop possible enhancements such as bilingual registration, credit authorizations, address verification, alternate section selection for closed courses, student account status, etc.

Continuing Education/Non-Credit Registration

* Description:

The purpose of this module is to enhance the student information system to better support the continuing education/non-credit registration process. The system will include improved marketing services and fiscal decision-making capabilities.

* Current Status:

Some preliminary discussion and design work has taken place.

* Future Plans:

A possible joint development with St. Louis Community College is under consideration. This effort is to be reconsidered in one year.

Job Placement

* Description:

This system provides job matching for the students of MCCCCD with available jobs in the Phoenix area. Job openings from employers are entered into the system as well as individual

student information. The job information may be shared among all of the colleges and area high schools through the network.

* Current Status:

The system has been implemented and is currently functioning at all of the colleges.

* Future Plans:

The service will be extended to area high schools and other agencies.

Diagnostic Placement

* Description:

This system is to be used to place students into the proper courses. The use of products from national testing agencies integrated into the MCCCCD systems is planned.

* Current Status:

A major study has been conducted to evaluate various placement tests from national organizations. Computer Services has provided support to that study.

* Future Plans:

Upon the choice of tests, efforts will be made to complete the programming and feeds into the SIS system.

Follow-Up System

* Description:

This system will attempt to determine the progress of students with their employment or their success at another college.

* Current Status:

Work has been done in support of a TEX-SIS system of evaluation. Further use of that product is under consideration.

* Future Plans:

We expect that the development of an interface

system with the State universities so that student transfer progress may be measured.

Articulation System

*** Description:**

This project will develop an on-line electronic transcript transfer system through cooperative work with Arizona universities. Student transcripts will be transmitted and possibly evaluated among these institutions.

*** Current Status:**

This project is currently under discussion.

*** Future Plans:**

It is also possible that MCCCCD will be the host for a state-wide computer network of articulation agreements for all universities and community colleges. This is currently under study by a consulting firm from the Board of Regents.

Personnel System

*** Description:**

All aspects of the Human Resource Systems (personnel and payroll) are currently automated. This includes job applicant tracking, human resource development and payroll. The system also supports the highly complex flexible benefits program of MCCCCD.

*** Current Status:**

The system is functioning. Additional computers have been purchased to expand the access to the network and improve office communications.

*** Future Plans:**

We want to continue improvements and enhancements to existing system.

Library Automation

*** Description:**

This is a major system that provides for the automation of the library and media center functions. The primary functions of this system will be to provide an online public access catalog, circulation control, acquisitions, and serials management.

*** Current Status:**

A contract has been signed with DRA for the software and the implementation of the system has begun. The database has been converted to the new format.

*** Future Plans:**

The long range goal will be to create a large information utility which will tie together the libraries in the community and MCCCCD, which includes ASU and important external databases.

Computer-Based Education (CBE)

*** Description:**

This project is the development of courseware that will be delivered via computer to students.

*** Current Status:**

The courses used to teach the underprepared student have been identified as a priority within MCCCCD. A budget of \$250,000 has been set aside for the development of a significant CBE effort in this general area. Currently, there are some preliminary investigations of appropriate strategies. Training has been scheduled for October in a major courseware development language (CBTS).

*** Future Plans:**

The goal is to actually develop courseware or purchase and adapt existing software to deliver a variety of instructional content to the student. This will be an ongoing project over many years in the future.

The integration of voice, video, and data with terrestrial transmission, point-to-point and microwave, and all those resources of networking and creating sub-networks and communicators into different kinds of communication systems are going to be fundamental ways to deliver our education. We will have so many electronic players in the organization doing things that affect learning that we are bound to be the freshest and most change-oriented institution in the country.

Telecommunications Improvement Project

Phase I Needs Assessment

Executive Summary

In October of 1985, the Maricopa Community Colleges contracted with Telecommunications International, Inc. (TII) to review the District's existing telecommunications systems to determine any telecommunications needs and to make recommendations for improvements. The needs analysis covered not only current needs, but also the needs projected for MCCCCD over the next decade.

To complete the needs assessment, TII reviewed the available records pertaining to the existing telecommunications systems and conducted extensive interviews with representatives from each college and from each department at the District Support Services Center.

Based upon the information obtained by reviewing the records and by conducting these interviews, TII recommends the following:

1. MCCCCD should prepare a formal Request for Proposal (RFP) to replace its existing PBX telephone systems with digital PBX

systems and to acquire new digital PBX systems for both of the new education centers.

2. The RFP developed should specify that the replacement systems include voice store and forward systems for messaging and complete management systems to track system performance.
3. MCCCCD should require the successful vendor to completely replace all existing wiring, including inside wire and outside plant cable.
4. MCCCCD should install a voice and data communications transmission system based on the use of twisted pair wire for simultaneous voice/data communications and a CATV based broadband system to handle high speed data and video communications and to support the current ETHERNET applications.

5. MCCCCD should establish a uniform wiring plan based upon a dual jack approach, with a minimum of two pair of twisted pair wire serving the top jack and two to four pair of twisted pair wire serving the bottom jack.
6. Every office/workstation, classroom and conference room should be wired for voice and data communications.
7. MCCCCD should establish an intercampus network for the distribution of voice, data and video communications between and among the colleges. This could be either purchased microwave or leased facilities such as high speed data lines or fiber optics.
8. MCCCCD should explore the acquisition of one or more satellite dishes which can be connected into an intercampus video distribution system.
9. Each of the colleges, the educational centers and the District Office should provide space for two fully equipped conference rooms for teleconferencing, including the teleconferencing and facsimile equipment.
10. A separate distribution system for each college and the educational centers should be established to carry full motion, color video from the broadband system to each classroom on each campus.
11. MCCCCD should develop a stringent telecommunications policy which would address all major MCCCCD goals as well as prioritize and plan the telecommunications projects required to meet all objectives.
12. MCCCCD should strengthen its telecommunications staff for improved management capabilities and for self-maintenance should this latter option prove desirable.

The costs for the total implementation will be approximately \$10 million for the 10-year plan. This amount contains \$4 million in operational dollars. Capital dollars are \$6 million. The bidding process may further reduce the actual cost.

I think we know very little about how organizations as organisms work. We tend to make assumptions that organizations will do what they're told to do--most of the time they don't. They have a life of their own, personalities of their own. Processes are extraordinarily important because information moves very, very rapidly and is very thoroughly distributed.

Instructional Computing Master Plan

Executive Summary and Recommendations

This Master Plan for Instructional Computing focuses attention on the roles computers will play in improving the quality of education over the next five years in the Maricopa Community College District (MCCCD). The Plan defines instructional computing as computing done in the process of instructional acts. The further computing is removed from the direct instruction of students, the less it can be called instructional computing.

Within the Plan, a hierarchy of stages of computer infusion is developed. The measure of infusion is the extent to which instructors make use of the computer as a tool for advancing their instructional tasks.

- Stage 1: Instructor becomes computer literate.
- Stage 2: Instructor uses the computer regularly for office, preparation, and professional uses.
- Stage 3: Instructor integrates computer uses into the existing curriculum.
- Stage 4: Instructor reassesses curriculum goals and priorities in the light of skills and knowledge needed in an information-based society.

This hierarchy can be used to measure computer infusion in a college or a department by looking at the percent of faculty at each stage.

Knowledge resources and hardware resources are prerequisites to the further development of instructional computing. MCCCD has a rich hardware environment combined with an eight-

year capital commitment to future hardware purchases. Faculty computer knowledge and use have increased dramatically the past five years. Now, 75% of faculty are computer literate.

Using current knowledge and hardware resources as a springboard, the Master Plan for Instructional Computing makes eighteen recommendations to support further integration of computers and instruction. The recommendations are based on analysis presented in the Plan, and are categorized as follows: **Enable the Instructor**, **Provide Programmer Support**, and **Exert Leadership**. The major recommendations are summarized below.

Enable the Instructor

These recommendations focus on ways to develop the district's computer knowledge resource by enabling the instructor to do instructional computing.

The percentage of faculty who will combine computer use with instruction will triple, from 20% to 60%, in the next five years. This growth will call for a stronger budgetary commitment to software, support and training.

The underlying theme of these recommendations is to build a network through which expertise can be easily exchanged. To this end a bulletin board system (BBS) should be established to facilitate the exchange of ideas in an open forum setting among all the district's colleges. In addition, two

funds should be established: one that supports gathering and disseminating expertise, the other that supports the development and integration of educational software.

For those instructors who want to develop software, an array of development tools should be provided, for which both instruction and on-going consultant help will be available.

The balance of the recommendations urge improvements in the gathering and dissemination of computing information.

Provide Programmer Support

In addition to being enabled to do instructional computing, faculty want programmer support for their instructional computing ideas.

Recommendation 12 urges the establishment of college instructional computing centers. These centers will provide both programming support and programming advice for writing new software and improving existing software.

Exert Leadership

MCCCD faculty recognize that the infusion of computers into instruction has only begun. They believe that a combination of leadership and vision will play an important role in the success of that infusion.

The Plan recommends that the District draft a royalty/copyright statement which serves to encourage faculty-developed computing projects. Recommendations 13 and 18 urge the computer users groups to assume a greater planning and leadership role. In addition, recommendation 17 urges the review of hardware spending patterns as instructional use of the VAX computers declines and the use of micro-computers increases.

Recommendations

This Master Plan for Instructional Computing has recommended eighteen ways to support and develop the instructional uses of computers both in courses where the computer is the subject of instruction and where the computer is used as an adjunct to instruction. The recommendations and

the analysis presented in the Plan should serve to encourage further discussions and planning about the applications of computer hardware and software in instruction.

A. Recommendations to enable the Instructor

1. Establish an Instructional Computing Information Fund (ICIF).

The ICIF will fund the development of information and expertise relating to instructional computing. Coordinated by C-IT, with annual priorities set by the District Academic Computer Users Group (DACUG), ICIF will provide a working combination of central support and decentralized expertise.

ICIF should be funded in the amount of \$10,000 per year for five years.

Given the existing models, how is it possible to 'enable the instructor' when there are scores of different topics to be enabled in? Staff presentation, and even staff consulting, cannot be expected to fill this need completely. The variety of interests, hardware and software is so great that even tripling the district staff and distributing them one to each college would not meet the need that exists. It is an unreasonable job description for one person to be good at the wide variety of software on essentially four different computers (IBM-PC, Apple II, Macintosh, and VAX), to continually learn new software and at the same time to prepare learning materials and teach it all.

With the help of staff, however, the enabling needs could be met by peer presentation and peer consulting. Staff would coordinate the awarding of resources through ICIF for the peer presentors and peer consultants, providing them with time, money, software, hardware, etc. For example, a faculty member (or staff, for that matter; let's use the entire available pool of talent.) would be given a stipend to research current CD-ROM technology, to explore uses of an existing system, and to prepare a 2-hour presentation on CD-ROM technology and its applications to education. This presentation would be given at several of the colleges and then archived at CIT for future use. A peer consultant (faculty on release time) might be assigned to prepare one such presentation each semester, in addition to being 'on call' for his/her

areas of responsibility. Others could be paid to develop annotated lists of software available to particular disciplines, to learn PILOT for the IBM in order to teach it to others, etc. The list of desirable projects would be prioritized annually by the DACUG.

There are some existing structures which make this an easy model to implement. CIT has become a consultant resource and a demonstration center for new and current technology. DACUG needs more decision-making responsibility on instructional computing matters. The Staff Development Coordinator at each college currently plans seminars, demos, etc., meeting the personal and professional needs of faculty and staff. The combination of these three, with funds to allocate to the preparation and presentation of instructional computing topics each year, would provide a rich resource of material for the entire district. CIT serves to keep the system working and to monitor the information development centrally to avoid total duplication of effort; DACUG insures that the information is pertinent, and the Staff Development Coordinators facilitate dissemination.

2. Establish an Instructional Computing Development Fund (ICDF).

The ICDF will fund the development of instructional computing software, courseware and templates. In addition ICDF will fund the integration of software, courseware and templates into the curriculum. Coordinated by CIT, with annual priorities set by the DACUG, ICDF will provide the support that instructors need in order to bring quality computer use into the curriculum. A peer review procedure should be used for the awarding of grants under ICDF.

ICDF should be funded at \$100,000 for the first year (1987-88) and increase by \$50,000 a year for four years.

ICDF will be coordinated and managed in much the same way as the ICIF described above.

2A. (Alternative to 2.) Award JCEP funds to the Instructional Councils, for five years, for instructional computing projects.

This proposal would serve two goals. First, it would provide a large infusion of support for integration of computing with instruction. Second, it would involve the instructional councils directly in the planning of computer integration on a discipline-by-discipline basis.

In particular then, award each instructional council project money for the 1987-88 school year. During the 1986-87 school year each instructional council will set up a planning/proposal submission process, so that funds can be allocated to specific projects by July 1, 1987.

The total award amounts would begin with \$100,000 and increase by \$50,000 per year for four years.

3. Use the computer itself as the information exchange.

A Bulletin Board System (BBS) should be created and used. It should be put on a VAX computer on the DECNet, so that it is accessible from any terminal (or micro as terminal) in the district. The BBS would be immediately accessible from every department office in the district. And since the telecommunications plan proposes wiring every office for data, as well as voice, the access would be universal by March 1988. Dial-up access to the BBS should be provided so that employees could reach it from home.

The BBS would consist of the following capabilities:

1. Dissemination of information

- Index to software, hardware and computer expertise in the District
- Lists of manuals and documentation and where to find them
- Reports of conventions, seminars, etc.
- Minutes of Board and committee meetings
- Schedules of seminars within the District

2. Conferencing

- Question and Answer forums on varieties of topics
- Ability to have closed conferences for committees, etc.

3. Access to public domain software

- Central storage of public domain software
- Central distribution of internally developed software, courseware, templates, etc.

In the future the BBS would be a community service BBS available to the public, providing information about MCCCCD's programs and courses, registration procedures, etc.

A BBS provides people with information when they need it. There is no need, then, to produce scores of indices, sent across every desk in the district. The updating of these indices is made somewhat easier because it is centralized and because there is no longer a distribution problem. A videotex (VTX) system for disseminating information has already been installed on a District MicroVax.

The question/answer forum provides one more way to decentralize the communication of information. It is just as easy to receive answers from another college as from your own.

Ready accessibility to public domain software and site-licensed software may encourage its use, resulting in lower software costs. Inter-college distribution of locally created software will be greatly enhanced.

4. District should maintain lists of software prices and discount options

The purchasing office should publish, in suitable forums such as the BBS, the current prices of commonly purchased software.

5. Form a public domain library of microcomputer software.

A public domain library of microcomputer software should be maintained on the BBS. In this way, the mass storage on the VAX is used to minimize the distribution costs of the library.

6. Develop and maintain a current directory of software in the district.

To fulfill the need for information about software owned within the district, a directory needs to be developed and maintained. This directory will also serve to provide inventory control of the software. To develop and maintain this directory is a large task, but one that many different groups within the district have an interest in.

A committee with representatives from Business Services, Auditing, Purchasing, and CIT have already begun developing procedures to maintain a directory of software. This Plan endorses their effort.

This directory should be an information item on the BBS.

7. Continue print publications to disseminate information.

CIT should begin a newsletter promoting its facilities for demo and information exchange. CIT's newsletter will also serve to inform computer users about past, current, and future seminars funded by the Instructional Computing Development Fund. The BBS itself should publish a one page flyer, bi-weekly, to promote new information available. Other print publications, such as The Computing Newsletter and the seminar schedules from Training Services, should continue.

The print publications should use attractive layout, graphics and photos. After all, the BBS will be text-only.

The print publications should, among other information, point to information available on the BBS.

8. Host an annual MCCCCD Computing Conference.

Training Services hosted an annual conference at Phoenix College for several years. This conference should be revived by District Computer Services. It will provide one more avenue for the communication of information on computing within the district, provide another forum for the presentation of the seminars funded by the ICIF, and provide a face-to-face balance to the other communication media.

9. Bring CIT to the colleges.

CIT should provide a road show, a bookmobile. CIT should take a selection of its software and hardware collection to each college for a week or two each semester, sponsoring an intensive week of seminars and presentations on new software, new hardware. This road show will be a vehicle for

CIT to disseminate its expertise. It will also serve to inform CIT of the current questions and interests of faculty as they implement instructional computing.

10. Provide faculty with an array of development tools.

The current trend within the administrative computing environment is to put more computing tools and responsibility into the hands of the users. Likewise, instructional computing needs an underlying basis of commercial quality programs on which faculty can build their own applications. The instructor will choose, with some direction, one of the following tools appropriate to his/her current level of expertise and end goals.

a. Application shell software, such as spreadsheet or database. An instructor builds a spreadsheet template for tax preparation or databases of cell characteristics, for example, which students will use in a problem-solving manner. The results of this, when distributed, are sometimes referred to as 'value added software.'

b. Templates of programming code for CAI. The instructor puts in his/her own text and graphics. The decision/branching structure is pre designed. The code could be an authoring language or other standard language. In the future, it is possible to imagine templates for the design of simulations.

c. Authoring Languages, such as Super PILOT or PC PILOT. The instructor writes code in a high level language specifically designed for CAI, on-line testing, drill, etc.

d. Standard Computer Programming Language, such as BASIC or Pascal.

The result of instructors preparing materials in this manner will be a lot of good handout quality programs, programs serving specific educational goals. In the preparation, however, instructors will become more sophisticated in the development and design process, more sophisticated in the integration of computers with the subject matter, and more sophisticated in evaluating software.

Both CIT and Training Services need to develop

seminars to promote and to teach these development tools.

11. Establish a team of peer consultants at each college.

Funded by release time, faculty would consult and assist other faculty in the instructional use of computers. The peer consultants may present seminars, help departments with long-range planning for computer implementation, or coordinate vendor demonstrations in addition to the consultant role.

By dividing the total computing picture into areas of responsibility, a few peer consultants could respond to most of the instructors' questions.

B. Recommendations to provide programmer support

12. Establish college instructional programming resource centers.

These centers will provide programming, programming tips and design help to faculty who have ideas for software for their courses. In some cases, faculty can be directed to resources for developing their own product, as described in 10. above.

I am leaving the careful design of these centers for later discussion. They will take on different characteristics at each college, of course, but it is my idea that these centers would help faculty develop level 2 and level 3 software. The centers would improve the quality of software already written, rewrite existing software for other computers, and write new software.

These centers may use student programmers to supplement an existing staff. These centers should be managed by the computer services department of the college, but work closely with the instructional design facilitator at the college. A faculty advisory board would set priorities for this center.

C. Recommendations for leadership

13. College Computer Groups become catalysts for planning.

The college computer user groups are advisory groups; and it is virtually fruitless for advisory groups to do serious planning in isolation. However, the computer user groups should assume the roles as a catalyst for planning and a resource for planning.

The college computer user groups should be a forum for discussing the significant change issues that emerge: changing needs for instructional support (for example, help in getting site-licensing agreements or in training lab technicians), changes in staffing/loading as a result of increasing lab-oriented courses, and other interdisciplinary computing support needs.

14. **Formalize a royalty/copyright statement which serves to encourage faculty developed computing projects.**

One of the best methods of encouragement is financial encouragement. Release time and summer pay represent two strategies. The possibility of future royalties represents another strategy. When an instructor conceptualizes a computing project, the main goal is to serve students' instructional needs. If that program works well, however, there is always the possibility of selling it to a publisher or marketing it oneself. MCCCCD should let nothing stand in the way of the possibility of future rewards from instructor-developed computing projects. To that end, MCCCCD should draft a royalty/copyright statement which serves to encourage faculty developed computing projects, even when these projects were done with college or district support.

An agreement should be developed which specifies, from the outset, the ownership and royalty arrangements. The agreement might be based on the following concept: "In exchange for MCCCCD resources (release time, paid summer time, access to district resources, personnel, computers, software and programming expertise), MCCCCD retains the right to use software developed in this project. Ownership of the software and all royalty rights fall to the instructor."

15. **Bring to MCCCCD speakers who challenge and enlarge our vision of instructional computing.**

The annual computing conference, recommendation 8., offers one opportunity. Over the next few years, we should make creative use of telecommunications to involve innovators to challenge us.

16. **District should negotiate software site licenses.**

The purchasing office at District should have the responsibility to negotiate site licenses and software discounts.

17. **Spend more money for microcomputers, less for VAX.**

If the instructional use of the VAX computers continues to decline, as described in VAX Flight above, the current division of the bond money for computer and telecommunications will be obsolete. Information Technologies Executive Council (ITEC) will need to authorize spending more of the allocation for instructional microcomputers at the colleges, and less for VAX computers controlled by the District Office which are used for predominantly non-instructional uses.

18. **Formally establish The Academic Computer Users Group (DACUG) as ITEC's instructional computing advisory group and provide DACUG with a charter of duties and areas of responsibilities.**

The areas of responsibilities would include:

- a. Recommend priorities for the implementation of various elements of the District's plan for computing.
- b. Review procedures relating to the purchase of computer hardware and software.
- c. Develop an annual priority list for the Instructional Computing Development Fund and the Instructional Computing Information Fund.
- d. Recommend policies on instructional computing issues, such as copyright, site licensing, loading/staffing, etc.

The ability to move information electronically in a number of facets, the whole information float has been altered. We have information immediately, whether it's accurate or properly portrayed, we're captive to the information flow.

Library/Media Automation

The Maricopa Project

Maricopa County Community College District has embarked on a major library/media automation project which is responsible for automating the following functions:

- cataloguing
- public access
- circulation
- acquisitions
- media booking

The project can be described in three phases:

- pre-consensus
- system delivery / start up implementation
- on-going implementation

History

The pre-consensus phase proved very challenging for MCCCCD. With seven, soon to be nine, "autonomous" colleges serving communities with divergent needs, our libraries reflect the needs of their communities but not each other. The challenge was to get all the librarians to agree on whether or not to automate, and if the decision was to automate, then to agree on a system. This process took over two years.

- 1983 library automation committee created
- 1984 initial vendor demos
 - subcommittees established
 - request for information released
- 1985 consultant hired
 - on-going process oriented work with consultant
- 1986 RFP released
 - site visits

- vendors evaluated
- project manager hired
- contract signed

Now that the contract is signed, the cry from the libraries is: we desperately need the system and we need it now!

System Delivery

The initial phase of implementation is taking place between 8/86 and 1/87. While an ambitious schedule, it is designed to place the basic tools in the hands of the librarians and allow them to develop those tools according to their needs.

While the multiplicity and autonomy of the colleges are challenging to the project, other factors pertaining to the Maricopa environment are a great blessing. Some of these factors are as follows:

Integrity and Autonomy

The library automation system Maricopa has contracted for with Data Research Associates (DRA) maintains a separate system for each college with one shared bibliographic and "patron" database. That is, each college is able to maintain independent circulation policies and patron policies. The bibliographic database is provided and maintained by a centralized library technical services. Although the

information in the patron database in accessible by all libraries, each college is able to load its own patron files according to its own specifications. We no longer have to reach consensus in order to implement the system. Each campus is able to develop and implement the system according to its own needs.

Digital Equipment Corp.

The DEC "shop" environment also proves a great blessing. The district based the project on the assumption that the processor would be a dedicated DEC VAX and that it would be networked with our other processors. This allowed us to order the brand new VAX 8700 under the terms of our DEC grant, at 45% of list price. Operations for the system will be relatively easy, as the new system will just be added to an existing family of VAX processors.

District Networking

System delivery occurs simultaneously with the implementation of a district-wide ethernet network. This allows the librarians direct access to the student information system, the All-in-1 electronic mail system and a vast array of other district wide and college information systems. It also allows faculty and administrative staff access to the library/media system and the bibliographic holdings of all colleges from their homes and offices.

External Networking

The project has also established dialogue with the university and public library systems so that we will eventually have hook ups to each others systems.

Information Associates

The Information Associates partnership with Maricopa will enable us to develop a customized interface between the DRA acquisition system and the IA financial information system.

Media

An additional challenge to the project has been that several of the colleges maintain media centers that are separate and autonomous from the libraries. The media centers, both integrated and autonomous have agreed that modifications to the "turnkey" system will be necessary in order for the system to be "useful". These modifications were successfully negotiated with the system vendor and will be implemented "after the dust settles" from the initial implementation phase.

Professional Development

The library staffs all agree that the automation project has been an excellent source of professional development. It has brought the libraries into the 20th century and has established momentum to explore and implement future information applications.

The Maricopa project does comply with the library automation guidelines which the league just issued.

We used to figure out all the solutions for the "colonies" around here [the district office] years and years ago. We don't do that as much as we used to. We sort of resist that temptation now and then. We have a well-conceived and pretty well-mixed notion of what works in the centralized and decentralized mode.

Center for Instructional Technology

Executive Summary of Strategic Master Plan

June 1986

I. Preface

Dr. Alfredo G. de los Santos Jr., Vice Chancellor for Educational Development first established the Center for Instructional Technology (CIT) in 1983 as a "demonstration center" for faculty and staff. The Center located in the district office building was a place where faculty and staff could see and use state-of-the-art technology and software as well as have access to resources and information related to instructional applications of technology.

Currently, five staff members provide support in instructional design, current resources and information service, training, and technical support.

II. Process for Developing the Plan

The strategic planning process and the master plan for the Center for Instructional Technology (CIT) are the result of Dr. Naomi O. Story's "Leaders for the 80s" project organized and developed from November 1985 to June 1986.

Interviews with faculty and staff members from the colleges and education centers were conducted to arrive at the planning assumptions. The CIT Advisory Group was formed to review the interview information and to devise the elements of the strategic master plan for the Center.

Members of the CIT Advisory group included

faculty and staff from several colleges who have varied experiences and background with instructional technology.

III. Mission statement

The Center for Instructional Technology supports anyone in the Maricopa County Community College District who directly and instructionally impacts students.

IV. Goals based on planning assumptions

- a. MCCCCD instructors/staff should have support (time, technical services, money, programming, systems analysis, and instructional design) for developing instructional applications of technology.
- b. MCCCCD instructors/staff should know about the purpose and role of the Center and the support that its staff can provide.
- c. MCCCCD instructors/staff should receive the latest information on technological innovations in instruction.
- d. MCCCCD instructors/staff should not always be expected to come to the district office for information or workshops related to instructional technologies.

e. The Center for Instructional Technology should provide an advocacy and leadership role for MCCCDC instructors/staff in the instructional applications of technology.

V. Plan of Action

The following is summary of the activities that the staff of the Center for Instructional Technology will conduct in the next 18 months.

- a. Promote the Center and its services by taking them to the colleges and education centers.
- b. Share information about instructional innovations on college campuses.
- c. Take leadership and become advocates for instructional innovations and technology.
- d. Evaluate new technologies (hardware/software) for instructional purposes.
- e. Provide workshops on instructional needs and applications of technology.
- f. Provide technical support for development of courseware.
- g. Set up district-wide information (electronic) networking system to support instruction.
- h. Provide demonstrations for instructional applications of technology.
- i. Provide professional development opportunities (internships, speakers, college faculty, etc.).
- j. Provide faculty with easy access to Center hardware and software.
- k. Review and revise the Center master plan as recommended by the Center's Advisory Group.

I believe that Maricopa is the leader nationally in technology, especially instructional technology and applications of technology for instructional support purposes. But, what I think we are doing in positioning the organization is far more important, in that, it will affect what Maricopa will be doing in five, ten, maybe twenty years from now. We're at the center of the information industry. There will be many organizations and institutions, community colleges and universities, that when the dust settles will not be in existence. I think that Maricopa has a greater chance of surviving in the future than other places because of our positioning.

Information Technologies Services Strategic Master Plan

WOULD YOU LIKE TO GO ON A JOURNEY?

A journey may be ahead of you. Are you willing to go? It may depend upon where you have been thus far, how well prepared you are now, and your desire to explore the unknown. To assist you in this decision, a plan has been envisioned to give a glimpse of what this journey may entail. If you join, you must view the journey itself as rewarding, for a final destination may be always just beyond the horizon. We hope you will come--for you will not only do more, but you also will become more.

WHERE HAVE WE BEEN?

If you have been a part of the Maricopa Community Colleges, you have witnessed a transition that reflects a shift from an industrial society to one based upon information. You have seen the gradual demise of the six underlying principles of the industrial era: standardization, specialization, synchronization, concentration, maximization, and centralization. When did the transition begin? What were the signs? Highlights of the history of technology within the district give clues. They are summarized by the following key words: (1) The Beginning; (2) Expansion; (3) Multiplication, Centralization, and External Support; (4) Intensified Centralization; (5) Reassessment; and (6) Decentralization.

WHERE ARE WE NOW?

A "technological continuum" is used as a basis for answering the question. The phases along this continuum are listed in order of lowest to highest level of sophistication in the use of information technologies: (1) Automated Record-keeping and Text Processing; (2) Electronic Communication; (3) Creative Utilization of Information Technologies, (4) Decision Making, and (5) Artificial Intelligence. The assessment of the Maricopa Community Colleges was made using four primary institutional functions: Instruction, Instructional Support, Student Services, and Institutional Support. By using specific examples within each function as a basis, the one that appears to be most advanced is Institutional Support, followed by Instruction. Of the two remaining functions, Student Services appears to lead Instructional Support.

WHERE ARE WE GOING?

A visitor to the Maricopa Community Colleges in 1990 is likely to see instruction occurring in a variety of ways, brought about through a program of faculty development and revitalization. Every faculty member will have a professional work station, and computer-assisted instruction will be integrated into all curricula. Many faculty will utilize

courseware they developed using fourth-generation software tools. Some will be using artificial intelligence software, utilizing the research and development laboratories available to them.

Many adult students, who entered with below average literacy skills, will be seen using laboratories that provide individualized instruction. Within the same setting, those students who have exceptional ability will be seen developing new concepts/applications with the computer, motivated by faculty who will have extended the students' horizons. Interactive video disc technology also will be present and heavily utilized by students. All student record-keeping will have been automated, and an individualized course of study appropriate to the student's level of performance will await him/her each session.

While there will continue to be libraries to support instruction, the concept of the library will not be limited to a facility; rather, it will be viewed as a national information resource, accessible through the network at the student's convenience on a 24-hour basis through the colleges' multidisciplinary and dedicated laboratories as well as through terminals in their homes and/or workplace.

Services to students will be available on a one-stop basis, made possible through the integration of automated on-line registration, assessment, academic advisement, career counseling, financial aid, and job placement information systems. A strong alumni association will be in operation due to the effectiveness in reaching alumni through the information system. Follow-up studies of students will reveal that the majority of students accomplished their educational objectives. Those who transferred to a university will have been satisfied with their well-planned program, continuous advisement, and quality of individual instruction. Many of the students who sought direct employment will have been well trained in a competency - based, computer - supported program. Some will have used the job placement automated services to obtain their job. And for those who took courses for general interest, they will be eager to return, given the quality of faculty who motivated them and the convenience of taking coursework.

The Maricopa District will be noted for the effective

use of the information resource. This perception will have been earned through the automation of all record-keeping functions and by providing information throughout the district in a form that facilitates effective decision-making. The district also will be noted as an organization that works effectively with other institutions and in partnerships with the private sector, having been successful in achieving the goals of previous partnership agreements.

Most of all, the Maricopa District will be known for the quality of its people. An on-going employee **professional development program** will be in place, facilitating a continuous revitalization of talent. Maricopa employees will have identified the new, tried the different: they will have been a part of the journey.

WHAT WILL WE FIND ALONG THE WAY?

Realizing the vision described above or something similar to it will require that any challenges we encounter be met and any opportunities be exploited. The following framework was used to depict the future environment: (1) scope (national, higher education, or community college); (2) influence of factors (social, political, economic, demographic, or technological); (3) type of influence (challenge or opportunity). The most influential challenges likely to affect the District in the years ahead are expected to be the following: financial resources, decentralization, management of information resource, retraining, and the needs of minority and underprepared students. The opportunities expected to be exploited are as follows: location in urban area of Southwest, low cost of attendance at community colleges, national reputation as a leading community college, a decentralized organization headed by a strong team, and hardware architecture appropriate to the future.

HOW DO WE GET THERE?

To know which roads to take, a destination must be selected. In planning terms, destination means goals. The roads to reach these goals are referred to as strategies. Given the historical background, the current foundation, and the projected future environment, a number of goals and strategies are

proposed. The goals are presented below.

1. **QUALITY INSTRUCTION:** To assist students in achieving their educational goals, the quality of instruction will be enhanced by incorporating information technology resources throughout the instructional process.
2. **INDIVIDUALIZATION OF INSTRUCTION:** To minimize faculty record-keeping and to support the individualization of instruction, technological tools and training will be made available to faculty.
3. **KNOWLEDGE RESOURCE:** To broaden the knowledge resource of and extend communication among Maricopa students and employees, the library resources will be automated and access will be increased.
4. **DIRECTION TO STUDENTS:** To provide students with assistance in planning and achieving their educational and career goals, information and support services will be developed and made available to students on a timely basis.
5. **SERVICE TO STUDENTS:** To assist employees in utilizing information about students, improvements and enhancements will be made to existing information resources.
6. **COST/EFFECTIVENESS:** To facilitate the most cost/effective management of the information resource, appropriate plans, procedures, and systems will be developed and implemented.
7. **TECHNOLOGICAL ADVANCEMENT:** To advance technologically, cooperative endeavors within the institution and with external entities will be maintained and increased.
8. **FINANCIAL RESOURCES:** To fulfill the mission of serving Maricopa County by offering quality education, means will be developed to increase the financial resource base.
9. **DECISION SUPPORT:** To provide information that meets the needs of those in decision-making positions, systems will be refined and means will be developed to disseminate information in easily accessible and relevant form.
10. **INCREASE COMMUNICATION:** To extend communication among Maricopa students and employees, a District-wide telecommunications network will be installed to provide electronic communication among locations.

WHAT WILL BE MY ITINERARY?

With the highways before you and a projected destination, you may be wondering what type of activities you will be doing, what schedule you will be following, who will be joining you, and what resources you will need. We have just the thing: it's called an Operational Plan. When you are ready, we'll go over it. Until then, let the ideas put forth in this strategic plan stimulate your imagination, extend your horizon, and instill a desire to join with us on our journey to the future.

We look at instruction as the bottom line, what this technology can do for students. We are playful with technology, we have a lot of fun with it. You look at the real pioneers in Maricopa. They are the ones who take a lot of risks in experimental projects, moving toward trying something in classrooms that they weren't trying five or six years ago.

Maricopa Community Colleges

Development Projects 1983-86

The Maricopa Community Colleges has established an internal grants program that provides funds for the development of projects. These projects address priorities determined biennially by a district-wide committee composed of faculty and administrators.

JCEP (Joint Council for Educational Planning) funds are provided for development of projects which provide major district-wide or college-wide impact in support of JCEP priorities. These funds are for development projects over and beyond operational support. However, they are not for the purchase of capital equipment or to continue "soft-money" operational projects.

DEDP (District Educational Development Projects) funds are available for development of projects by individuals, small groups, departments or projects which are inter-departmental or inter-college and address one or more JCEP priorities. As with JCEP, these funds are for development projects over and beyond operational support and are not for the purchase of capital equipment or continuation of "soft-money" operational projects.

1985-86 JCEP PROPOSALS

<u>COLLEGE</u>	<u>PROJECT TITLE AND DIRECTOR</u>
GLENDAL	SELF-PACED, COMPUTER AIDED DELIVERY SYSTEM FOR ENG 071 REVIEW OF ENGLISH FUNDAMENTALS Diana Balogh/Joy Wingersky/Jan Boerner To complete the computerizing of the testing component for this competency-based course in which students can achieve writing proficiency at a self-paced speed using the Apple IIe
GLENDAL	FACULTY COMPUTER LITERACY PROJECT
MESA	Deans of Instruction/Rick Meyer
SCOTTSDALE	During the Spring Semester, 1985, a JCEP grant provided time and other resources for
PHOENIX	planning for the dissemination of the Faculty Computer Literacy Project from the District
MARICOPA	Support Services Center to the colleges. This proposal addresses the implementation
TECHNICAL	phase of the college-based programs for faculty computer literacy. The grant request covers the elements of the project that all colleges agree to provide in cooperation with Educational Computer Services. Additional support is requested for individual college plans that demonstrate enhancement of the basic literacy project and that are based on college-specific needs

<u>COLLEGE</u>	<u>PROJECT TITLE AND DIRECTOR</u>
MARICOPA TECHNICAL PHOENIX	CAI TICCIT TO MICROCOMPUTER CONVERSION Rick Sheets/Betty Field Continuation of former proposal and add new focus of occupational programs needs in the conversion of Math content from TICCIT to microcomputer
SOUTH MOUNTAIN	WRITING ACROSS THE CURRICULUM Julie Bertch A three-part program of Writing to Improve Student Learning Writing to Deliver Instruction in Low-Enrollment Courses, and Writing Instruction with Microcomputers
GLENDALE	DEVELOPMENT OF COMPUTER SOFTWARE FOR HEALTH/FITNESS ASSESSMENT H. Lopez/M. Austin/W. K. Staheli To develop a computer software for health/fitness assessment for microcomputer use
GLENDALE	SELF-PACED COMPUTER AIDED DELIVERY SYSTEM FOR EN 071 REVIEW OF ENGLISH FUNDAMENTALS D. Balogh/J. Boerner/J. Wingersky To design and pilot a competency-based, computer-aided course in which students can achieve writing proficiency at a self-paced speed using Apple IIe
GLENDALE	DEVELOPMENT OF AUTOTUTORIAL MODULES FOR BIOLOGY Elizabeth Haines Cooper To develop 7 audio-visual modules for use as study aids by Biology Students
GLENDALE	RESEARCH PAPERS EVALUATIONS AND FILING Robert R. Johannsen To design, pilot testing, evaluation, and dissemination of six APPLESOFT computer programs that will print evaluations and file numerical data concerning research papers
GLENDALE	MACROECONOMIC COMPUTER SIMULATIONS Paul dePippo/Vern Guymar/Hannes Kvaran To develop a "user-friendly" computer program that will demonstrate the macroeconomic effects of various stimuli under a number of macroeconomic theories

1984-85 JCEP PROPOSALS

MARICOPA TECHNICAL PHOENIX	COMPUTER-ASSISTED DEVELOPMENTAL MATH Kay Martens To convert TICCIT courseware to a microcomputer for CAI use in Learning Assistance Centers
PHOENIX	A MODEL FOR UPDATED DELIVERY OF BUSINESS PROGRAMS AT PHOENIX COLLEGE H. F. Reinken/K. R. Green/M. A. Zinky Establishment of a model which will allow for the delivery of new and updated business programs
GLENDALE	PHASE II COMPUTER LITERACY PROJECT Mark Montanus/Lyle Langlois This project will permit additional application of this effort through the continued use of a half-time microcomputer lab technician and the creation of new computer literacy modules

COLLEGE PROJECT TITLE AND DIRECTOR

MESA	INTERACTIVE VIDEO EN 102 Donella Eberle/Ron Fanning To create interactive video (computer and video) materials for use in EN 102 classes
MARICOPA TECHNICAL Library Technical Services	DISTRICT-WIDE LIBRARY AUTOMATION AND COMPUTERIZATION: INVESTIGATION AND INFORMATION-GATHERING Shirley Lowman Attend workshops and conduct site visits for background investigation to properly plan, develop, and implement a District-Wide library automation system
PHOENIX	MICROCOMPUTER ART APPLICATIONS Gail Jamieson This project will integrate computer literacy in two applied art classes by requiring students to design 2-dimensional and 3-dimensional art work on the Apple IIe microcomputer. Pilot exercises for these two semester courses will be developed and pilot-tested on an accelerated basis with 6 volunteer art students
RIO SALADO	COMPUTER LAB MODEL Carol Scarafiotti Develop a model for computer lab which can be used for open entry/open exit computer literacy courses, for lab sections of lecture lab programming courses, and for computer- assisted instruction such as drills, questions and quizzes for regular lecture classes. This model will be replicated at Paradise Valley Mall, Westridge Mall, Bell Plaza Center in Sun City, Perryville Prison and Williams Air Force Base
SOUTH MOUNTAIN	STUDENT COMPUTER LITERACY AND ACADEMIC MOTIVATION Samia Massoud An introduction to computers and information processing designed to increase computer literacy and to instruct and motivate students through interactive communication on the computer

1983-84 JCEP PROPOSALS

GLENDALE	IMPLEMENTATION OF DESIGN GRAPHICS A. M. Peters Install and train faculty for teaching Design Graphics compatible to Industrial Drafting needs and students at GCC
MESA	MICROCOMPUTER ACCOUNTING APPLICATIONS William A. Holt This project will integrate computer literacy in the Applied Accounting classes. It will require students to perform accounting transactions on microcomputers, primarily the Apple IIe and the TRS 80s
SOUTH MOUNTAIN	TEACHING MUSIC FUNDAMENTALS THROUGH CAI Jerome Garrison A music computer-assisted instruction program will be prepared which will be able to (a) conduct music skills training during the scheduled class, or (b) provide individualized study

<u>COLLEGE</u>	<u>PROJECT TITLE AND DIRECTOR</u>
GLENDALE	CURRICULUM INTEGRATION OF COMPUTER AIDED DRAFTING Allen Peters Integration CAD Technology into the existing GCC Drafting Curriculum, including a two-day workshop
MARICOPA TECHNICAL	COMPUTER AIDED DRAFTING Harrison Frost/Alan Jacobs Integrate a strong Computer-Aided-Design component into the current drafting curriculum in MCCCCD over three years. The second year includes training drafting instructors and expanding the pilot instructional project (continuation)
MARICOPA TECHNICAL	COMPUTERS IN NURSING EDUCATION Maxine Burley This project is for the purpose of editing and re-evaluating computerized math and metrology tests developed for nursing during the summer
MESA	PROGRAMMING CAI MATERIALS FOR USE IN ESL, DEVELOPMENTAL, AND BASIC ENGLISH COURSES Donella Eberle A set of materials has been designed to aid students who need additional instruction/ review in English grammar; these materials have been classroom tested and are now ready to be put into the computers
PHOENIX	COMPUTER LITERACY IN THE DENTAL FIELD Karen A. Christen Provides for training of faculty, students, and staff in computerized records systems and computer-assisted instruction; provides for planning for development of these systems
SCOTTSDALE	STUDENT PLACEMENT, ASSESSMENT, ADVISEMENT AND TRACKING Judy Bloyer Develop system to track students in order to obtain data on student job placements; inform public of placement services and employable students; improve data base on job market information for student advisement
SCOTTSDALE	MICRO-COMPUTER MANAGEMENT SIMULATION Jim Hogan The project will develop a Micro-Computer Simulation. It will duplicate three kinds of decisions made in the business world to develop productivity and increase profitability

DEDP PROPOSALS 1985-86

GLENDALE	GENETICS SIMULATIONS EXPERIMENTS Elizabeth Haines Cooper To develop a series of computer simulation experiments for Biology Honors Students
PHOENIX	METHOD OF EVALUATING STUDENT SPEECHES Sanford Elias Using the computer to generate individualized responses/critiques to student speeches

<u>COLLEGE</u>	<u>PROJECT TITLE AND DIRECTOR</u>
GLENDALE	C LANGUAGE/ARCHITECTURE COURSES DEVELOPMENT Manny Griego To develop a structured programming course (C Language) in the Electronic Computer Curriculum and a microcomputer architecture course in the Computer Technology Curriculum
PHOENIX	ADAPTION OF CHEMISTRY CAI SOFTWARE FOR USE AT MCCCC COLLEGES J. Weide/P. Moyer The project activities will be evaluation of non-commercial CAI software for chemistry, transfer of programs judged to be suitable to diskettes on which they will be arranged by course and topic, provision of a user-friendly menu and documentation on each diskette, and dissemination of the diskettes to all chemistry departments in the district
MARICOPA TECHNICAL	DESIGNING A NEW INSTRUCTIONAL APPROACH FOR INTRODUCTORY ELECTRONICS A. Gillespie/E. Huston The purpose of the project is to redesign the instructional approach to EY 119 to incorporate the use of models, simulations, and visuals in order to accommodate the diverse student population

1984-85 DEDP PROPOSALS

MARICOPA TECHNICAL	COMPUTER-ASSISTED INSTRUCTION WITH INTERACTIVE VIDEO IN RS 120 James Walters Development of a model for conversion of a course to open entrance/open exit format utilizing computer-assisted instruction and interactive Video in RS 120
PHOENIX	INFORMATION THRU SPEECH (ITS) Ginney Bugh To train handicapped students, faculty, and staff to the functions of ITS - a voice synthesized computer and to provide access to education materials
GLENDALE PHOENIX	MICROCOMPUTER INTERFACING C. L. West/J. Weide Interfacing microcomputers with instruments. Developing software for classroom use
GLENDALE	C LANGUAGE COURSE DEVELOPMENT Manny Griego To develop a structured programming course (C Language) in the Electronic Computer Technology Curriculum
GLENDALE	GUIDE TO COMPUTERIZED BRAIN FUNCTION TESTS I. S. Westenberg We will write a guide for choosing programs to be used on District computers in teaching computerized human brain function tests; the programs' assets, liabilities cost, etc. will be listed to aid in choosing
SOUTH MOUNTAIN	DEVELOPING ANALYTICAL SKILLS IN SOLVING WORD PROBLEMS (CAI) Samia Massoud Provide SMCC math students with increased abilities to solve word problems through Computer Assisted Instruction in analytical skills

COLLEGE PROJECT TITLE AND DIRECTOR

MESA AGRICULTURAL MICROCOMPUTER TEMPLATES
James D. Claridge
Development of record-keeping and analysis template programs for horticulture and agribusiness

1983-84 DEDP PROPOSALS

GLENDALÉ INPUT-OUTPUT DEVICES COURSE DEVELOPMENT
Manny Griego
To develop one course of study for the new Electronic Computer Technology curriculum. Course title is Input-Output Devices (EL 222)

GLENDALÉ COMPUTER APPLICATIONS IN AGRICULTURE
Dan Martinez
Application of Microcomputer Technology into the Agriculture/Horticulture curriculum. The project includes a two-day workshop for all Agriculture faculty

MARICOPA MICROCOMPUTER DATA ENTRY PROCESSING INSTR SYSTEM
TECHNICAL Roxana Maskell/Nancy Musser
The Microcomputer data entry processing system requires the preparation of programmed instruction with lessons on cassette tapes and workbook material

MARICOPA MATERIALS FOR DATA ENTRY PROCESSING
TECHNICAL Lynn Flowers/Linda Fowler
A program and instructional delivery system is needed to emulate transaction processing. The teaching of CRT operation and transaction processing is required for the data entry and data processing degree. This will be done on the LX40 (data entry microcomputer system) instead of the main-frame system to more efficiently use the available

MARICOPA DESIGN OF COMPUTER-RELATED TYPING COURSE
TECHNICAL D. Larson
Research and design an instructional system to greatly emphasize speed and accuracy skill in Typing I and to revise Typing II and Typing III accordingly

MARICOPA COMPUTERIZED TESTING IN PSYCHOLOGY
TECHNICAL Virgil Mathes
Use of the Microcomputer for alternative testing procedures in Psychology 101

RIO PROJECT HOMEBOUND
SALADO Jan Baltzer
To determine how the Sundial Network can service home-bound, handicapped students through identification of potential students services needed, delivery mechanisms and funding sources for minor equipment items

SCOTTSDALE MICROCOMPUTERS INTERFACING WITH CHEMICAL INSTRUMENTATION
Robert Miller/ Donald Snow
This project involves the development of skills and competencies among the four MCCCC chemistry instructors in interfacing microcomputers with chemical laboratory instrumentation

<u>COLLEGE</u>	<u>PROJECT TITLE AND DIRECTOR</u>
SOUTH MOUNTAIN	COMPUTER-BASED INSTRUCTIONAL PROGRAM FOR THE "PRIME" EDITOR Samia Massoud The project discusses the basic concepts of the PRIME computer system, the subsystems and compilers available under it. Key concepts of the command language, how to create and modify a file are introduced
PHOENIX	DEVELOPMENT OF INSTRUCTIONAL UNITS USING NEW EQUIPMENT/DELIVERY METHODS Seth Evans and Harry Heinken Development of a series of Lecture-Lab demonstrations using a new computer terminal delivery system
PHOENIX	CRT MODULE FOR DATE ENTRY/UNIT FOR OFFICE PRODUCTION SKILLS Willie Minor Cooperative effort to implement CRT technology applications for individualized office instructional material to meet the developmental needs of business & industry
MESA	PROGRAMMING CAI MATERIALS FOR USE IN ESL, DEVELOP. AND BASIC ENGLISH COURSE Donella Eberle A set of materials has been designed to aid students who need additional instruction/review in English grammar; these materials have been classroom tested and are now ready to be put into computers
GLENDALE	DEVELOPMENT OF CAMPUS-WIDE WRITING PROGRAM AND A WRITING LABORATORY Constance Korn Project director will study the literature, contact authorities, organize workshops, write grant proposals and develop a Writing Across the Curriculum program and Writing Laboratory at Glendale Community College
PHOENIX	PHOENIX COLLEGE MUSIC DEPARTMENT COMPUTER - LITERACY Chalma Frost This project seeks to address our need to learn how best to use our new Apple IIe in the areas of department record-keeping, individualization of instruction, adaptation of instruction for the under-prepared student and provide alternative delivery systems for instruction
SCOTTSDALE	FOUR MICROCOMPUTER-BASED BIOLOGICAL LABORATORY EXPERIENCES Dennis Massion/Lynn Keating Development of microcomputer-based simulation exercises and units for environmental biology adapting commercially available software packages
SCOTTSDALE	HT3: HIGH TECHNOLOGY FOR THEATRE TECHNOLOGY Kimb Williamson This project would provide for a study of microcomputer applications in theatre arts business and management and how those applications of high technology can serve a study towards occupational programming in theatre

COLLEGE PROJECT TITLE AND DIRECTOR

**SOUTH
MOUNTAIN**

**COMPUTER-ASSISTED INSTRUCTION OF BASIC SKILLS PROGRAMS IN
MATHEMATICS SUBJECTS**

Samia Massoud

Computer-Assisted Instruction Programs in Mathematics will be prepared as step-by-step methods of problem-solving with illustrative examples geared for all students from developmental to advanced